UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Analyses of geochemical samples and descriptions of rock samples, Adams Gap and Shinbone Creek Roadless Areas, Clay County, Alabama

by

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Open-File Report 83-335

Table of Contents

	Page
Abstract	1
Introduction	1
Sampling Procedures	1
Analytical Techniques	2
Explanation of Tables 2, 3, and 4	3
References Cited	4
Table 1	5
Table 2	11
Table 3	16
Table 4	20

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Adams Gap and Shinbone Creek Roadless Areas in the Talladega National Forest, Clay County, Alabama. Adams Gap (08215) and Shinbone Creek (08067) were classified as further planning areas during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

Abstract

Semiquantitative spectrographic analyses for 31 elements on 105 rocks, 47 stream-sediment, and 70 soil samples from the Adams Gap and Shinbone Creek Roadless Areas and vicinity, Talladega National Forest, Clay County, Alabama are reported here in detail. Atomic-absorption analyses for zinc in all samples and for gold in 5 selected rock samples are also reported. Localities for all samples are given in Universal Transverse Mercator (UTM) coordinates. A brief description of each rock sample is included. Rocks analyzed include quartzite, phyllite, vein quartz, and schist.

Introduction

The analyses reported here are for 105 rock, 47 stream-sediment, and 70 soil and samples collected by G.R. Robinson, T.L. Klein, F.G. Lesure and J.T. Hanley, assisted by J.A. Goss and W.D. Rowe in March and April 1982. Maps showing sample localities and discussion of analytical results are given by Robinson and others (1983b).

Sampling Procedures

The rock samples consist of a few chips taken across bedding or layering over a measured thickness. The samples are representative of the major rock types exposed in the area. Most of the rock is partly weathered, but the freshest material available was generally sampled. Rock samples were crushed to approximately 0.25 in (6 mm) and pulverized to minus 140-mesh (0.004 in. or 0.105 mm) in a vertical grinder with ceramic plates. Trace element data for the rock samples are given in Table 2.

Soil samples are grab samples from the A_2 or upper B soil zone, just below the dark, organic-rich surface soil (A_1 zone). The samples dried, sieved to minus 80-mesh (0.007 in. or 0.177 mm), and then pulverized to minus 140-mesh (0.004 in. or 0.105 mm). Trace element data for the soil samples are given in Table 3.

Most of the small drainage basins in the study area and some adjacent to it were sampled by collecting at random several handfuls of the finest sediment available at the sample site in the stream. After drying in the laboratory at room temperature, the samples were sieved to minus 80-mesh (0.007 in or 0.177 mm) and then pulverized to minus 140-mesh (0.004 in. or 0.105 mm) for analysis. Trace element data for the stream sediment samples are given in Table 4.

Analytical Techniques

Each sample was analyzed semiquantitatively for 31 elements by means of a six-step, D.C. (direct-current) arc, optical-emission spectrographic method (Grimes and Marranzino, 1968) by M.S. Erickson in the U.S.G.S. laboratories, Denver, Colorado (Table 2). All samples were also analyzed by means of atomic-absorption techniques for zinc (Ward and others, 1969, p. 20) by D.L. Kelley and L.J. Sherlock in the U.S.G.S. laboratories, Denver, Colorado. Five rock samples were analyzed by means of atomic absorption techniques for gold (Ward and others, 1969, p. 20) by D.L. Kelley in the U.S.G.S. laboratories, Denver, Colorado.

The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15 or multiples of 10 of these numbers) and are approximate geometric midpoints of the concentration ranges. The expected precision is within one adjoining reporting interval on each side of the reported value 83 percent of the time and within two adjoining intervals 96 percent of the time (Motooka and Grimes, 1976).

The visual lower limits of determination for the 31 elements that were determined spectrographically and are included in this report are as follows:

For those given in percent:

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

For those given in ppm:

Antimony	100	Molybdenum	5
Arsenic	200	Nickel	5
Barium	20	Niobium	20
Beryllium	1	Scandium	5
Bismuth	10	Silver	0.5
Boron	10	Strontium	100
Cadmium	20	Thorium	100
Chromium	10	Tin	10
Cobalt	5	Tungsten	50
Copper	5	Vanadium	10
Gold	10	Yttrium	10
Lanthanum	20	Zinc	200
Lead	10	Zirconium	10
Manganese	10		

Explanation of Tables 2, 3, and 4

The tables show the results of geochemical analyses of rock (Table 2), soil (Table 3), and stream-sediment (Table 4) samples from the Adams Gap and Shinbone Creek Roadless Area and vicinity.

The X and Y coordinates are Universal Tranverse Mercator (UTM) grid zone 16. The X coordinate is the easting value in meters; the 7 coordinate is the northing value in meters.

Letters beneath chemical symbols indicate the analytical method: S, six-step semiquantitative spectrographic method; AA, atomic absorption. Other symbols used in the table are: N, not detected; --, not determined; <, amount detected is below the lowest limit of determination, which is the number shown; >, amount detected is above the highest limit of determination, which is the number shown.

Elements of rock samples looked for spectrographically but not found, except as noted, are: Ag, As, Au, Bi, Cd, Mo, Sb, and Th. There is one exception: Sample AAS408BR was reported to contain <5 ppm Mo. Gold was analyzed for in five rock samples by atomic-absorption methods. The results are as follows:

AAS 226R	N
AAS 562R	N
AAS 568R	N
AAS 569R	<.05
AAS 570R	<.05

Elements in stream-sediment and soil samples looked for spectrographically but not found, except as noted, are: Ag, As, Au, Bi, Cd, Mo, Sb, Sn, Sr, W, Zn, and Th. There are two exceptions: Sample AAS008D was reported to contain <10 ppm Sn and sample AAS216T was reported to contain 10 ppm Mo.

References Cited

Grimes, D.J. and Marranzino, A.P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semi-quantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.

Motooka, J.M. and Grimes, D.J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geological Survey Circular 738, 25 p.

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Ward, F.N., Nakagawa, H.M., Harms, T.F., and Van Sickle, G.H., 1969, Atomic absorption methods of analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1289, 45 p.

Table 1.--Description of rock samples. [All samples, except as noted, are composites of several small chips taken randomly across the rock outcrop over 1 meter. The statigraphic names in this report follow the usage of Robinson and others, 1983a.]

Sample No.	Description
AAS 000R	Medium-light-gray, coarse-grained sandstone with ovoid, feldspar and blue quartz clasts. Heflin Phyllite.
AAS 001R	Greenish-gray, fine-grained phyllite. Heflin Phyllite.
AAS 005R	Medium-red, fine-grained, ferruginous sandstone. Heflin Phyllite.
AAS 013R	Medium-light-gray, pebble conglomerate with elongate, feldspar and blue quartz clasts. Heflin Phyllite.
AAS 016R	Light-olive-gray, medium-grained sandstone. Heflin Phyllite.
AAS 018R	Yellowish-gray, fine-grained, sandy phyllite. Heflin Phyllite.
AAS 022R	Bluish-white, conglomeratic sandstone with elongate, dark-gray and white quartz clasts. Abel Gap Formation.
AAS 026R	Medium-dark-gray, fine-grained, phyllitic sandstone. Epidote in thin section. Abel Gap Formation.
AAS 028R	Yellowish-gray, fine- to medium-grained sandstone with a few coarse-grained layers. Abel Gap Formation.
AAS 029R	Medium-gray, medium-grained conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 032R	Grayish-pink, fine-grained, conglomeratic sandstone. Abel Gap Formation.
AAS 033R	Pale-orange weathering, fine-grained, sandy phyllite. Abel Gap Formation.
AAS 037R	Very light-gray, fine-grained calcite-cemented siltstone. Abel Gap Formation.
AAS 039R	Medium-dark gray, medium-grained conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 040R	Pinkish-gray, fine-grained conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 042R	Light-gray, medium-grained, conglomeratic quartzite with elongate clasts. Cheaha Quartzite member of the Abel Gap Formation.
AAS 043R	Pinkish-gray, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 044R White, cryptocrystalline quartz vein. Cheaha Quartzite member of the Abel Gap Formation.

AAS 045R Pinkish-gray, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 046R Grayish-pink, fine-grained, conglomeratic, ferruginous quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 047R Pinkish-gray, fine-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 048R Grayish-orange weathering, fine grained, sandy phyllite. Abel Gap Formation.

AAS 049R White, fine-grained quartzite. Cheaha Quartzite of the Abel Gap Formation.

AAS 053R Dark gray, medium-grained sandstone. Abel Gap Formation.

AAS 054R Light- to medium-light-gray, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 100R Yellowish-gray, very coarse sandstone. Heflin Phyllite.

AAS 211R Iron-stained, white, cryptocrystalline quartz vein. Abel Gap Formation.

AAS 214R Red, fine-grained, ferruginous sandstone. Abel Gap Formation.

AAS 215R White, crystocrystalline quartz vein, .5m thick. Abel Gap Formation.

AAS 219R Medium-gray, very fine-grained, sandy phyllite. Abel Gap Formation.

AAS 220R Dark-gray and pink, fine-grained, ferruginous phyllite. Abel Gap Formation.

AAS 221R White, cryptocrystalline quartz vein. Chulafinee Schist.

AAS 226R Light-greenish-gray, fine-grained greenstone. Hillabee Chlorite Schist.

AAS 230R Light- to medium-gray, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 240R Pale-orange, fine-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 241R Light-grayish-pink, coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 243R Light- to brownish-gray, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 302R	Grayish-yellow-green, coarse-grained sandstone. Heflin Phyllite.
AAS 303R	Medium-light-gray, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 304R	White, cryptocrystalline quartz vein. Cheaha Quartzite member of the Abel Gap Formation.
AAS 305R	Medium-light-gray, medium-grained conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 306R	Yellowish-gray, coarse-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 401R	Light-olive-gray, fine-grained, calcite-cemented, sandy phyllite. Heflin Phyllite.
AAS 402R	Pale-olive, fine-grained, sandy phyllite. Heflin Phyllite.
AAS 407R	Medium-gray, massive phyllite. Heflin Phyllite.
AAS 408AR	Yellowish-brown, coarse-grained, phyllitic sandstone. Heflin Phyllite.
AAS 408BR	Pale-olive, sandy phyllite. Heflin Phyllite.
AAS 410R	Yellowish-brown, medium-grained, phyllitic sandstone. Heflin Phyllite.
AAS 412R	Pale-olive, slate phyllite. Heflin Phyllite.
AAS 415R	Dark-gray, sandy phyllite. Heflin Phyllite.
AAS 416R	Yellowish-gray, granular conglomerate with ovoid feldspar clasts. Heflin Phyllite.
AAS 418R	Medium-dark grey, medium-grained sandstone. Abel Gap Formation.
AAS 421R	Mottled-medium-light-gray, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 422R	Yellowish-gray, weathering, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 423R	Light-gray, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 424R	Light-gray, fine-grained, sandy phyllite. Abel Gap Formation.
AAS 425R	Very light-gray, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.
AAS 427R	Grayish-yellow to yellowish-brown, coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 430R Medium-dark-gray, fine-grained phyllite. Abel Gap Formation.

AAS 433R Medium-dark-gray, massive phyllite. Abel Gap Formation.

AAS 434AR Light-olive, very fine-grained, sandy phyllite. Abel Gap Formation.

AAS 434BR Medium-gray, fine-grained, phyllitic quartzite. Abel Gap Formation.

AAS 435R Light-gray to pale-red-purple, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 436R Pinkish-gray, coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 437R Rust to very pale-orange weathering, coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 438R Pale-red-purple, medium-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 439R Pinkish-gray, medium-grained, slightly phyllitic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 440R Pale-red-purple, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 441R Bluish-white, medium- to coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 443R Medium-light-gray, very fine-grained, sandy phyllite. Heflin Phyllite.

AAS 444R Red weathering, very fine-grained, micaceous schist. Abel Gap Formation.

AAS 448R Grayish-brown weathering, sandy phyllite. Abel Gap Formation.

AAS 503R Light-gray, very fine- to fine-grained, sandy phyllite. Heflin Phyllite.

AAS 504R 0.6m chip sample, light-olive-gray, phyllitic sandstone. Heflin Phyllite.

AAS 508R Light-olive-gray weathering, very fine- to fine grained slate. Heflin Phyllite.

AAS 513R White, cryptocrystalline quartz vein. Heflin Phyllite.

AAS 515R Light-olive-gray, calcareous sandstone. Heflin Phyllite.

AAS 520R Medium-gray to grayish-orange, fine- to medium-grained, sandy slate. Heflin Phyllite.

AAS 521R Light-gray, fine-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 522R Medium-light-gray, phyllite with massive and sandy interbeds. Abel Gap Formation.

AAS 523R 0.6m chip sample, white, cryptocrystalline quartz vein. Abel Gap Formation.

AAS 524R Medium-gray, very fine-grained, massive slate. Abel Gap Formation.

AAS 527R Light-olive-gray and pale-red, medium-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 530R Light-medium-gray phyllite. Abel Gap Formation.

AAS 533R Rust to yellowish-gray weathering, very fine-grained, silty phyllite. Abel Gap Formation.

AAS 534R 2m chip sample, purplish-red-gray, fine grained, ferruginous, phyllitic sandstone. Abel Gap Formation.

AAS 535R Medium-gray, massive phyllite. Abel Gap Formation.

AAS 536R Yellowish- to greenish-gray weathering phyllite. Abel Gap Formation.

AAS 537R Yellow-tan to reddish-orange saprolite. Chulafinee Schist.

AAS 539R Quartz, chlorite schist with abundant eye-shaped, quartz lenses. Chulafinee Schist.

AAS 540R 3m chip sample, white to light-gray, pebble conglomerate. Cheaha Quartzite member of the Abel Gap Formation.

AAS 547R Moderate-red weathering, coarse-grained schist. Poe Bridge Mountain Formation.

AAS 548R Yellowish-orange to yellowish-brown weathering, fine-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AS 551R Pale-greenish-yellow, fine-grained, phyllitic sandstone. Hillabee Chlorite Schist.

AAS 552R Pale-greenish-yellow weathering, very fine-grained phyllite. Abel Gap Formation.

AAS 554R Moderate-brown, very fine-grained, ferruginous, conglomeratic sandstone. Abel Gap Formation.

AAS 556R Dark-gray, coarse-grained quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 560R Light-gray and grayish-red quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 561R Medium-gray, coarse-grained, conglomeratic quartzite. Cheaha Quartzite member of the Abel Gap Formation.

AAS 562R	Rusty-orange saprolite. Hillabee Chlorite Schist.
AAS 564R	Yellow-tan saprolite. Abel Gap Formation.
AAS 565R	Yellow-tan phyllite chips. Abel Gap Formation.
AAS 568R	Rusty-orange saprolite. Hillabee Chlorite Schist.
AAS 569R	Rusty-orange saprolite. Hillabee Chlorite Schist.
AAS 570R	Rusty-orange saprolite. Hillabee Chlorite Schist.

Table 2.--Trace-element analytical results of rock samples, Adams Gap and Shinbone Creek Roadless Areas and vicinity, Clay County, Alabama.

Sample	X coordinate	Y coordinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS000R	607,427	370,039	1.50	.50	<.05	.500	150	70	500	2.0	<5	<10	10
AAS001R	607,443	370,030	10.00	2.00	<.05	1.000	200	200	500	5.0	7	100	50
AAS005R	608,467	369,971	10.00	.50	<.05	1.000	200	200	300	2.0	5	50	30
AAS013R	607,380	369,900	.20	.05	<.05	.100	150	30	100	1.0	N	<10	N
AAS016R	607,692	369,927	1.00	.20	<.05	.300	150	30	700	1.0	N	<10	<5
AAS018R	604,798	369,801	2.00	.50	<.05	.300	150	50	300	2.0	N	10	10
AAS022R	606,905	369,340	.70	.02	<.05	.150	15	30	100	<1.0	N	<10	<5
AAS026R	606,743	369,368	2.00	.20	.05	.300	200	20	50	N	N	<10	<5
AAS028R	606,620	369,438	.70	.02	<.05	.100	15	20	50	<1.0	<5	<10	N
AAS029R	607,843	369,292	.50	.03	<.05	.050	20	10	30	N	N	<10	N
AAS032R	606,300	369,495	2.00	.02	<.05	.030	500	20	50	N	N	<10	<5
AAS033R	606,176	369,478	10.00	.50	.05	1.000	200	200	500	3.0	N	100	20
AAS037R	605,365	369,416	2.00	.70	>20.00	.200	200	50	150	<1.0	N	20	<5
AAS039R	610,750	369,832	.50	.02	.15	.100	20	<10	500	<1.0	N	<10	N
AAS040R	610,833	369,827	.30	.03	<.05	.100	20	10	300	N	N	<10	N
AAS042R	609,042	369,746	.10	.03	<.05	.150	<10	50	100	1.0	N	<10	N
AAS043R	606,330	369,694	.10	.03	<.05	.100	<10	30	50	<1.0	N	<10	N
AAS044R	606,318	369,684	<.05	.02	<.05	.007	<10	<10	<20	N	<5	<10	N
AAS045R	607,736	369,598	1.00	.02	<.05	.070	10	20	50	N	<5	<10	N
AAS046R	607,555	369,474	.20	.02	<.05	.050	10	10	50	N	N	<10	N
AAS047R	607,807	369,303	.10	.02	<.05	.050	10	10	<20	N	N	<10	N
AAS048R	611,921	369,892	20.00	1.00	<.05	1.000	20	300	700	5.0	N	70	30
AAS049R	610,245	369,955	.20	.02	<.05	.050	<10	10	500	<1.0	N	N	N
AAS053R	611,258	369,844	.50	.02	<.05	.070	10	10	200	<1.0	N	N	N
AAS054R	608,160	369,495	.10	.02	<.05	.050	20	10	30	N	N	N	N
AAS100R	604,580	369,746	1.00	.15	<.05	.500	150	70	50	<1.0	N	<10	5
AAS211R	604,900	369,610	.05	<.02	<.05	.002	<10	<10	<20	N	N	N	N
AAS214R	605,175	369,508	1.50	.02	<.05	.100	50	20	<20	N	N	N	<5
AAS215R	604,960	369,390	.10	<.02	<.05	<.002	<10	<10	20	N	N	N	N
AAS219R	607,161	369,254	5.00	.70	<.05	.700	50	200	1,000	3.0	5	100	20
AAS220R	607,626	369,240	7.00	.50	<.05	.700	200	200	1,000	3.0	10	100	20
AAS221R	607,785	369,221	1.00	.02	<.05	.050	15	10	50	N	N	N	<5
AAS226R	610,064	369,428	10.00	7.00	7.00	.300	1,500	15	<20	N	30	500	100
AAS230R	610,300	369,752	.20	.07	.05	.070	30	50	100	N	N	N	N
AAS240R	610,650	369,812	.30	.02	<.05	.030	20	15	300	<1.0	N	N	N
AAS241R	609,560	369,650	1.00	<.02	<.05	.015	70	<10	50	N	N	N	5
AAS243R	608,632	369,600	.15	.02	<.05	.150	50	30	200	N	N	N	<5
AAS302R	604,587	369,736	1.50	.20	.05	.200	100	50	100	1.0	N	N	5
AAS303R	607,843	369,292	1.50	.02	<.05	.030	20	15	<20	1.0	N	N	<5
AAS304R	607,843	369,292	.70	.05	<.05	.030	50	20	30	1.0	N	N	10
AAS305R	607,843	369,292	.50	.03	<.05	.050	10	15	20	<1.0	N	N	N
AAS306R	607,843	369,292	1.50	.05	<.05	.030	70	15	20	1.0	N	N	<5
AAS401R	608,060	370,098	5.00	1.50	5.00	.700	1,500	100	1,000	2.0	15	50	<5
AAS402R	608,317	370,113	10.00	1.50	<.05	.500	500	150	150	3.0	7	50	50
AAS407R	608,513	370,092	10.00	3.00	5.00	.700	>5,000	200	500	3.0	20	70	30

Table 2.--continued

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Zn-ppm aa
AAS000R	N	N	10	<10	<5	N	N	20	N	15	N	100	25
AAS001R	100	50	20	15	20	10	N	100	N	150	N	500	55
AAS005R	N	N	30	50	10	N	N	70	N	50	N	300	10
AAS013R	N	N	5	<10	N	N	N	15	<50	<10	N	300	5
AAS016R	N	N	5	10	N	N	N	20	N	15	N	>1,000	<5
AAS018R	30	N	5	10	N	N	N	30	N	20	N	1,000	5
AAS022R	20	N	5	<10	N	N	N	20	<50	20	N	>1,000	<5
AAS026R	N	N	7	<10	N	N	N	30	<50	20	N	500	20
AAS028R	N	N	5	<10	N	N	N	15	N	10	N	300	<5
AAS029R	N	N	7	<10	N	N	N	10	<50	N	N	300	<5
AAS032R	N	N	5	<10	N	N	N	20	N	15	N	200	<5
AAS033R	N	20	15	50	20	N	N	70	N	50	N	>1,000	20
AAS037R	N	N	5	10	<5	N	500	50	N	30	N	300	10
AAS039R	N	N	<5	<10	N	N	N	<10	<50	N	N	70	<5
AAS040R	N	N	<5	<10	N	N	N	<10	<50	N	N	100	<5
AAS042R	N	N	<5	<10	N	N	N	15	<50	N	N	700	<5
AAS043R	N	N	<5	<10	N	N	N	15	<50	N	N	300	<5
AAS044R	N	N	<5	<10	N	N	N	10	<50	N	N	N	N
AAS045R	N	N	<5	<10	N	N	N	10	<50	N	N	150	<5
AAS046R	N	N	<5	<10	N	N	N	10	<50	N	N	70	N
AAS047R	N	N	<5	<10	N	N	N	<10	<50	N	N	100	<5
AAS048R	100	30	7	50	15	10	100	100	N	50	N	500	15
AAS049R	N	N	<5	N	N	N	N	<10	N	20	N	100	<5
AAS053R	N	N	<5	<10	N	N	N	<10	N	N	N	50	<5
AAS054R	N	N	<5	<10	N	N	N	<10	N	<10	N	50	<5
AAS100R	20	N	<5	15	5	N	N	20	N	10	N	1,000	15
AAS211R	N	N	<5	N	N	N	N	<10	N	N	N	N	<5
AAS214R	N	N	<5	<10	N	N	N	15	N	20	N	200	<5
AAS215R	N	N	<5	<10	N	N	N	<10	N	N	N	N	<5
AAS219R	100	20	10	20	15	N	N	100	N	50	N	500	10
AAS220R	70	20	20	20	15	N	N	100	N	50	N	700	15
AAS221R	N	N	<5	10	<5	N	N	10	N	N	N	30	<5
AAS226R	N	N	150	<10	30	N	200	100	N	15	N	50	10
AAS230R	N	N	5	<10	N	N	N	10	N	N	N	700	<5
AAS240R	N	N	<5	<10	N	N	N	10	N	N	N	200	<5
AAS241R	N	N	<5	10	N	N	N	10	N	N	N	200	<5
AAS243R	20	N	<5	<10	N	N	N	<10	N	15	N	200	<5
AAS302R	N	N	<5	<10	N	N	N	10	N	10	N	300	15
AAS303R	N	N	<5	15	N	N	N	<10	N	N	N	100	5
AAS304R	N	N	5	10	N	N	N	<10	N	N	N	100	5
AAS305R	N	N	<5	10	N	N	N	<10	N	N	N	150	5
AAS306R	N	N	5	10	N	N	N	<10	N	N	N	200	15
AAS401R	50	<20	20	<10	10	N	150	100	N	100	N	1,000	55
AAS402R	20	20	20	20	10	N	N	100	N	50	N	700	160
AAS407R	100	20	30	100	20	N	100	100	N	70	N	700	115

Table 2.--continued

Sample	X coordinate	Y coordinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS408AR	608,015	370,052	2.00	.50	<.05	.150	1,000	20	20	1.0	<5	N	15
AAS408BR	608,015	370,052	5.00	1.50	<.05	1.000	100	200	700	5.0	N	150	15
AAS410R	605,336	369,840	2.00	.50	<.05	.700	200	100	700	1.5	5	30	50
AAS412R	605,467	369,764	15.00	1.50	<.05	1.000	500	200	1,000	3.0	20	100	70
AAS415R	606,681	369,807	5.00	1.50	.05	1.000	300	200	2,000	5.0	<5	100	5
AAS416R	606,545	369,840	2.00	.50	<.05	.200	500	50	150	1.5	N	10	5
AAS418R	605,562	369,570	1.00	.07	<.05	.200	10	30	30	<1.0	N	N	<5
AAS421R	605,799	369,704	.10	<.02	<.05	.070	<10	15	20	N	N	N	<5
AAS422R	606,018	369,716	<.05	<.02	<.05	.020	<10	10	<20	N	N	N	<5
AAS423R	606,191	369,697	.70	.05	<.05	.050	20	30	<20	N	N	N	<5
AAS424R	605,616	369,642	1.50	.15	<.05	.500	20	150	200	2.0	N	20	10
AAS425R	605,995	369,673	.15	<.02	<.05	.030	10	10	<20	N	N	N	<5
AAS427R	607,144	369,701	.15	<.02	<.05	.050	10	10	<20	N	N	N	<5
AAS430R	606,741	369,556	10.00	1.00	<.05	1.000	200	200	700	2.0	10	100	15
AAS433R	605,899	369,576	7.00	1.00	<.05	1.000	200	200	700	2.0	<5	70	7
AAS434AR	606,240	369,611	1.00	.20	<.05	.300	100	70	50	1.0	N	<10	<5
AAS434BR	606,240	369,611	1.50	.20	.05	.300	100	100	30	<1.0	N	N	5
AAS435R	607,020	369,720	.15	.02	<.05	.050	20	<10	<20	N	N	N	<5
AAS436R	607,498	369,767	.20	.03	<.05	.070	30	20	20	<1.0	N	N	N
AAS437R	606,910	369,759	.70	.02	<.05	.050	20	20	20	1.0	N	<10	N
AAS438R	606,150	369,756	.20	.03	<.05	.100	10	10	<20	<1.0	N	<10	N
AAS439R	605,820	369,761	.20	.05	<.05	.200	15	50	30	1.0	N	<10	N
AAS440R	605,323	369,730	.30	.03	<.05	.150	50	20	20	1.0	N	<10	N
AAS441R	604,940	369,721	.20	.05	<.05	.150	20	50	50	1.0	N	<10	N
AAS443R	604,630	369,694	10.00	1.50	<.05	1.000	1,000	150	700	2.0	30	100	50
AAS444R	612,758	369,969	5.00	.50	<.05	.200	1,000	150	300	2.0	20	100	15
AAS448R	612,155	369,859	20.00	.50	<.05	.300	>5,000	100	700	2.0	50	150	200
AAS503R	607,812	370,265	2.00	1.00	.10	.500	1,000	150	500	2.0	7	50	5
AAS504R	608,296	370,299	2.00	.70	.50	1.000	3,000	150	500	1.5	5	50	7
AAS508R	608,660	370,232	5.00	2.00	.50	.700	1,000	200	500	3.0	10	100	100
AAS513R	607,853	370,221	2.00	.10	<.05	.100	3,000	<10	150	1.0	N	N	5
AAS515R	607,850	370,204	5.00	1.00	<.05	.700	1,500	100	300	1.0	<5	50	7
AAS520R	604,646	369,756	5.00	1.50	<.05	1.000	300	200	1,500	3.0	N	100	20
AAS521R	604,742	369,639	.50	.05	<.05	.300	15	50	50	1.0	N	N	N
AAS522R	605,005	369,576	5.00	.30	<.05	1.000	50	200	300	2.0	N	100	20
AAS523R	605,187	369,530	2.00	.02	<.05	.100	500	50	20	<1.0	20	<10	<5
AAS524R	605,562	369,570	5.00	1.00	<.05	.700	100	150	500	2.0	<5	100	20
AAS527R	606,260	369,636	1.00	.03	<.05	.150	70	10	20	N	N	N	<5
AAS530R	606,942	369,672	5.00	.50	<.05	1.000	20	200	500	3.0	N	100	20
AAS533R	605,080	369,442	5.00	.50	<.05	1.000	50	200	1,000	2.0	N	50	10
AAS534R	604,960	369,390	5.00	.10	<.05	.700	100	100	50	1.0	<5	15	<5
AAS535R	605,280	369,248	7.00	.50	<.05	1.000	50	300	1,000	5.0	N	150	30
AAS536R	606,099	369,269	7.00	.70	<.05	1.000	700	300	500	5.0	30	100	20
AAS537R	607,760	369,212	7.00	.30	<.05	1.000	100	150	500	5.0	<5	50	15
AAS539R	608,280	369,227	5.00	.50	<.05	1.000	500	150	500	2.0	10	70	15

Table 2.--continued

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Zn-ppm aa
AAS408AR	N	N	10	<10	N	N	N	15	N	20	N	100	25
AAS408BR	200	30	5	50	30	15	N	100	N	70	N	300	5
AAS410R	N	N	7	N	5	N	N	50	N	70	N	300	5
AAS412R	20	20	50	N	30	N	N	150	N	50	300	200	50
AAS415R	200	20	10	70	20	N	<100	100	N	100	N	500	5
AAS416R	20	N	7	10	N	N	N	20	N	15	N	150	60
AAS418R	20	N	<5	<10	N	N	N	15	N	20	N	500	10
AAS421R	N	N	<5	<10	N	N	N	10	N	10	N	100	<5
AAS422R	N	N	<5	N	N	N	N	<10	N	N	N	100	<5
AAS423R	N	N	5	N	N	N	N	10	N	N	N	150	5
AAS424R	N	<20	5	10	5	N	N	50	N	20	N	500	5
AAS425R	N	N	<5	<10	N	N	N	<10	<50	N	N	70	<5
AAS427R	N	N	5	<10	N	N	N	<10	N	N	N	50	<5
AAS430R	100	20	30	70	20	N	100	100	N	50	N	300	85
AAS433R	30	20	10	50	15	N	N	100	N	50	N	>1,000	35
AAS434AR	N	N	7	N	N	N	<100	20	N	10	N	1,000	15
AAS434BR	N	N	<5	N	N	N	N	20	N	15	N	700	15
AAS435R	N	N	<5	N	N	N	N	<10	<50	N	N	100	<5
AAS436R	N	N	<5	N	N	N	N	10	N	N	N	100	<5
AAS437R	N	N	<5	N	N	N	N	10	N	N	N	70	<5
AAS438R	N	N	<5	N	N	N	N	10	N	10	N	200	<5
AAS439R	N	N	<5	<10	N	N	N	15	N	10	N	700	<5
AAS440R	N	N	<5	<10	N	N	N	10	N	N	N	100	<5
AAS441R	N	N	<5	10	N	N	N	15	N	10	N	150	<5
AAS443R	N	20	50	10	20	N	N	150	N	50	200	100	115
AAS444R	N	N	7	15	10	N	N	50	N	<10	N	100	15
AAS448R	N	N	100	70	20	15	N	200	N	10	N	100	5
AAS503R	N	<20	7	10	7	N	N	70	N	20	N	200	25
AAS504R	70	<20	7	10	5	N	N	50	N	50	N	1,000	30
AAS508R	100	20	20	<10	15	N	N	100	N	70	<200	200	125
AAS513R	N	N	7	N	N	N	N	10	N	10	N	70	20
AAS515R	50	<20	7	<10	7	N	N	100	N	50	N	>1,000	60
AAS520R	100	20	<5	70	15	N	N	70	N	50	200	300	10
AAS521R	N	N	<5	<10	N	N	N	15	N	10	N	500	<5
AAS522R	100	20	5	50	15	N	N	100	N	50	N	>1,000	10
AAS523R	N	N	<5	10	N	N	N	20	N	N	N	100	<5
AAS524R	50	<20	10	50	15	N	N	100	N	50	N	500	5
AAS527R	N	<20	<5	N	N	N	N	15	N	15	N	100	5
AAS530R	50	20	15	50	15	N	<100	100	N	30	N	300	10
AAS533R	50	20	5	10	10	N	N	100	N	50	N	>1,000	5
AAS534R	100	N	<5	<10	5	N	N	100	N	50	N	>1,000	15
AAS535R	100	<20	50	20	20	N	N	200	N	50	N	300	10
AAS536R	100	20	30	70	15	N	<100	100	N	50	N	500	25
AAS537R	20	20	10	20	10	N	N	100	N	30	N	500	10
AAS539R	20	<20	20	10	10	N	N	100	N	20	N	300	50

Table 2.--continued

Sample	X coordinate	Y coordinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS540R	608,680	369,294	.30	.02	<.05	.070	20	10	1,000	N	N	N	N
AAS547R	609,405	369,237	5.00	.70	<.05	.500	500	50	500	<1.0	30	200	200
AAS548R	608,368	369,255	2.00	.03	<.05	.200	50	50	100	<1.0	N	<10	<5
AAS551R	609,957	369,436	3.00	.50	<.05	.100	500	<10	20	1.0	N	N	15
AAS552R	610,397	369,707	1.50	.20	<.05	.500	20	100	1,000	2.0	N	30	5
AAS554R	608,708	369,408	20.00	.02	<.05	.070	700	100	500	7.0	N	N	10
AAS556R	608,778	369,513	.50	.05	<.05	.200	20	50	1,000	1.0	N	N	<5
AAS560R	609,980	370,158	.50	.02	<.05	.050	10	30	20	N	N	N	15
AAS561R	609,408	369,897	.10	.05	<.05	.070	30	20	150	<1.0	N	N	<5
AAS562R	610,265	369,475	10.00	5.00	7.00	.500	2,000	50	20	N	30	200	200
AAS564R	611,000	369,742	5.00	.10	<.05	.300	100	200	300	2.0	N	30	10
AAS565R	609,540	369,664	.50	.05	<.05	.150	50	20	500	<1.0	N	10	7
AAS568R	610,302	369,490	15.00	1.00	1.00	1.000	2,000	50	100	1.0	30	300	200
AAS569R	610,302	369,490	10.00	.50	<.05	1.000	1,500	70	100	1.0	30	700	150
AAS570R	610,302	369,490	10.00	.30	<.05	1.000	300	50	50	1.0	5	15	100

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Zn-ppm aa
AAS540R	N	N	<5	<10	N	N	N	<10	<50	10	N	300	<5
AAS547R	70	<20	100	30	20	N	N	200	N	--	N	300	65
AAS548R	N	N	<5	<10	N	N	N	50	N	10	N	500	5
AAS551R	N	<20	<5	<10	7	N	N	<10	N	15	N	300	35
AAS552R	50	N	5	20	5	N	N	150	N	50	N	1,000	5
AAS554R	N	N	5	100	N	N	N	20	N	70	200	70	20
AAS556R	N	N	<5	<10	N	N	N	20	N	10	N	300	<5
AAS560R	N	N	<5	15	N	N	N	10	N	N	N	200	<5
AAS561R	N	N	<5	<10	N	N	N	15	<50	<10	N	200	<5
AAS562R	N	N	100	<10	50	N	100	300	N	50	N	70	105
AAS564R	N	N	15	10	5	N	N	100	N	20	N	700	10
AAS565R	N	N	5	<10	N	N	N	10	N	<10	N	700	35
AAS568R	N	N	100	<10	70	N	N	300	N	50	<200	70	95
AAS569R	N	N	70	20	50	N	N	300	N	10	<200	70	70
AAS570R	N	N	10	10	30	N	N	200	N	<10	N	100	10

Table 3.--Trace-element analytical results of soil samples, Adams Gap and Shinbone Creek Roadless Areas and vicinity, Clay County, Alabama.

Sample	X coordinate	Y coordinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS002D	607,561	370,008	7.0	.50	<.05	.5	300	300	500	3.0	10	70	50
AAS003D	608,185	370,022	1.0	.15	<.05	.5	50	50	100	N	N	10	5
AAS004D	608,300	369,998	1.0	.10	<.05	.5	50	50	100	N	N	10	5
AAS006D	607,962	369,940	1.0	.10	<.05	.5	70	50	100	N	N	<10	5
AAS007D	607,560	369,962	1.0	.15	<.05	.5	50	30	70	N	N	15	7
AAS008D	607,460	369,965	3.0	.70	.05	.5	500	200	500	5.0	10	50	20
AAS014D	607,422	369,883	1.0	.10	<.05	.5	100	100	150	1.0	N	30	7
AAS015D	608,130	369,848	1.0	.30	<.05	.3	30	100	500	1.0	N	10	<5
AAS021D	607,426	369,264	2.0	.30	<.05	.5	150	200	500	2.0	5	50	15
AAS023D	607,162	369,336	1.5	.15	<.05	.5	50	150	100	N	N	20	<5
AAS024D	607,162	369,336	1.5	.10	<.05	1.0	50	100	100	N	N	15	5
AAS027D	606,576	369,395	1.0	.02	<.05	.5	30	20	20	N	N	<10	<5
AAS030D	606,025	369,301	.7	.03	<.05	.3	50	30	50	<1.0	N	10	<5
AAS031D	606,560	369,476	1.0	.05	<.05	.5	50	100	50	N	N	10	<5
AAS034D	605,921	369,445	3.0	.70	<.05	.5	50	200	500	3.0	N	70	50
AAS036D	606,209	369,424	1.5	.20	.05	.7	150	100	200	<1.0	N	20	7
AAS051D	610,855	369,930	1.5	.10	<.05	.7	70	100	200	<1.0	N	30	10
AAS202D	608,440	370,264	3.0	.30	<.05	.3	50	100	300	1.5	N	50	15
AAS203D	608,780	370,198	1.5	.20	<.05	.5	500	100	200	1.5	N	20	10
AAS204D	608,520	370,213	2.0	.20	<.05	1.0	200	150	200	1.0	N	30	10
AAS205D	608,161	370,200	3.0	.50	<.05	.5	300	150	200	2.0	N	50	15
AAS222D	609,052	369,268	2.0	.30	<.05	.5	70	100	700	2.0	N	50	15
AAS223D	609,038	369,253	3.0	.20	<.05	.3	30	100	500	1.5	N	30	10
AAS224D	608,229	369,224	1.5	.30	<.05	.7	30	200	500	2.0	N	50	20
AAS229D	610,607	369,723	7.0	.15	<.05	.5	20	150	500	1.5	N	50	15
AAS232D	609,020	369,433	5.0	.50	<.05	.5	100	200	500	2.0	N	70	30
AAS233D	609,480	369,454	5.0	.10	<.05	.7	50	200	200	1.0	N	70	30
AAS234D	609,489	369,476	3.0	.10	<.05	.5	150	150	200	1.5	N	50	15
AAS235D	609,511	369,501	2.0	.15	<.05	.3	20	100	200	2.0	N	20	5
AAS236D	609,751	369,522	1.5	.15	<.05	.3	30	100	200	2.0	N	20	5
AAS242D	608,980	369,591	1.0	.20	<.05	1.0	100	150	500	1.0	N	50	7
AAS244D	608,720	369,565	3.0	.15	<.05	.7	70	200	200	1.0	N	50	5
AAS245D	609,340	369,567	3.0	.30	<.05	.7	200	150	200	1.5	N	70	20
AAS307D	605,409	369,398	5.0	.70	<.05	.7	20	200	500	1.5	N	70	15
AAS401D	608,060	370,098	7.0	.70	<.05	1.0	500	200	500	2.0	15	70	15
AAS404D	608,960	370,136	5.0	.70	<.05	.5	500	200	300	2.0	15	70	30
AAS411D	605,300	369,785	5.0	.70	<.05	.7	100	200	700	2.0	15	70	30
AAS413D	606,300	369,818	3.0	.50	<.05	.7	100	200	500	1.5	N	70	20
AAS414D	606,698	369,789	2.0	.30	<.05	.5	100	200	300	<1.0	N	50	15
AAS419D	605,251	369,691	1.0	.20	<.05	.5	100	200	200	1.0	N	30	7
AAS420D	605,674	369,691	1.5	.20	.05	1.0	200	200	200	1.0	N	50	10
AAS426D	606,265	369,664	2.0	.20	<.05	1.0	100	200	200	1.0	N	50	7
AAS431D	606,020	369,535	5.0	.70	<.05	1.0	300	300	500	2.0	15	70	20
AAS442D	604,720	369,714	10.0	.70	<.05	1.0	300	200	500	1.5	7	70	30
AAS445D	612,177	369,940	2.0	.20	<.05	.3	50	200	500	1.0	N	70	15

Table 3.--continued

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	V-ppm s	Y-ppm s	Zr-ppm s	Zn-ppm aa
AAS002D	100	20	20	30	15	100	50	300	20
AAS003D	N	N	5	30	N	30	10	>1,000	15
AAS004D	N	N	5	30	N	30	20	1,000	20
AAS006D	N	N	7	<10	N	20	20	1,000	35
AAS007D	20	N	10	20	N	30	20	>1,000	10
AAS008D	150	20	20	70	10	100	50	200	5
AAS014D	N	<20	10	20	5	50	30	>1,000	50
AAS015D	50	N	7	150	5	30	15	1,000	25
AAS021D	50	<20	20	20	10	100	50	700	10
AAS023D	20	<20	5	10	5	50	200	>1,000	15
AAS024D	30	20	5	10	5	50	50	>1,000	15
AAS027D	N	N	5	10	N	50	50	1,000	20
AAS030D	N	N	5	<10	N	50	15	300	20
AAS031D	20	N	7	10	N	50	150	>1,000	60
AAS034D	70	N	50	30	15	150	50	200	85
AAS036D	50	N	10	15	<5	50	50	>1,000	35
AAS051D	N	N	5	20	<5	50	20	1,000	25
AAS202D	20	N	15	15	7	50	20	500	30
AAS203D	50	<20	10	50	5	70	50	>1,000	10
AAS204D	50	<20	5	20	<5	50	30	>1,000	15
AAS205D	50	<20	7	50	7	70	50	500	10
AAS222D	N	<20	7	20	10	100	50	500	10
AAS223D	N	<20	5	30	5	50	30	300	10
AAS224D	20	<20	7	30	10	100	30	300	10
AAS229D	N	N	5	10	5	100	15	>1,000	30
AAS232D	20	N	7	30	7	100	30	1,000	5
AAS233D	30	N	5	15	7	100	50	1,000	10
AAS234D	50	<20	5	10	7	100	20	1,000	20
AAS235D	30	N	5	70	5	50	10	500	20
AAS236D	N	N	5	15	5	50	15	500	50
AAS242D	50	20	5	30	5	70	50	>1,000	10
AAS244D	50	<20	5	30	<5	50	50	>1,000	40
AAS245D	N	N	7	30	7	100	10	300	40
AAS307D	N	<20	7	10	7	100	30	>1,000	15
AAS401D	30	20	10	20	10	100	50	1,000	10
AAS404D	N	N	15	70	7	70	30	300	25
AAS411D	100	<20	15	15	10	100	50	700	5
AAS413D	N	<20	7	20	10	100	50	>1,000	5
AAS414D	N	N	7	10	<5	70	15	1,000	5
AAS419D	30	<20	5	15	<5	70	30	>1,000	5
AAS420D	50	<20	5	20	<5	50	50	>1,000	10
AAS426D	50	<20	5	15	5	70	50	>1,000	25
AAS431D	70	<20	15	30	10	100	50	>1,000	5
AAS442D	N	20	15	20	15	100	50	>1,000	15
AAS445D	30	N	7	15	5	100	30	500	40

Table 3.--continued

Sample	X coordinate	Y coordinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS447D	611,878	369,891	3.0	.20	<.05	1.0	100	200	100	<1.0	N	70	20
AAS505D	608,335	370,297	5.0	.50	<.05	.7	700	300	200	2.0	20	70	30
AAS506D	608,581	370,220	5.0	.70	<.05	.5	100	300	500	2.0	<5	70	30
AAS507D	608,808	370,238	2.0	.50	<.05	1.0	200	200	150	<1.0	N	30	15
AAS510D	608,095	370,254	3.0	.50	<.05	1.0	200	200	500	1.5	N	50	20
AAS511D	607,979	370,227	5.0	.50	<.05	.7	100	150	500	1.5	N	50	15
AAS512D	608,000	370,261	7.0	.70	<.05	1.0	150	300	300	2.0	N	100	30
AAS514D	607,815	370,255	5.0	.50	<.05	.7	300	200	500	2.0	N	70	15
AAS516D	608,620	370,153	5.0	.50	<.05	>1.0	300	300	500	1.5	10	50	10
AAS517D	608,180	370,164	5.0	.70	<.05	.7	200	100	200	1.5	<5	50	100
AAS518D	607,958	370,176	7.0	1.00	<.05	.7	200	200	200	2.0	10	70	70
AAS519D	607,710	370,157	5.0	1.00	<.05	.7	200	200	200	2.0	N	70	20
AAS532D	605,045	369,480	3.0	.70	<.05	.7	50	200	200	1.0	N	50	20
AAS541D	609,202	369,297	2.0	.10	<.05	.7	200	50	300	1.0	N	70	15
AAS542D	609,380	369,299	3.0	.15	<.05	.7	200	50	200	<1.0	N	70	20
AAS543D	609,455	369,369	7.0	.30	<.05	1.0	300	100	300	1.0	N	100	30
AAS544D	609,319	369,337	5.0	.50	<.05	.7	200	100	300	1.0	<5	100	50
AAS545D	609,302	369,247	3.0	.20	<.05	1.0	300	100	300	<1.0	N	50	30
AAS549D	608,502	369,234	7.0	.50	<.05	.7	70	100	500	2.0	N	70	15
AAS550D	608,437	369,216	5.0	.20	<.05	.5	50	100	300	2.0	N	50	15
AAS553D	608,840	369,399	5.0	.30	<.05	.5	50	100	200	2.0	N	50	15
AAS555D	608,583	369,487	1.5	.20	<.05	.7	50	50	700	<1.0	N	50	10
AAS557D	609,000	369,489	1.5	.10	<.05	.7	70	100	100	<1.0	N	50	5
AAS566D	609,479	369,577	5.0	.50	<.05	.5	200	200	200	1.5	N	100	20
AAS567D	609,968	369,603	5.0	.10	<.05	.3	100	100	500	1.0	N	50	10

Table 3.--continued

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	V-ppm s	Y-ppm s	Zr-ppm s	Zn-ppm aa
AAS447D	N	<20	5	15	5	100	30	1,000	10
AAS505D	100	<20	20	50	10	100	30	500	10
AAS506D	100	<20	15	20	10	100	50	300	15
AAS507D	50	20	5	10	<5	50	70	>1,000	10
AAS510D	50	20	15	30	7	100	50	500	25
AAS511D	N	<20	10	20	7	100	50	1,000	15
AAS512D	100	<20	10	70	15	100	50	700	15
AAS514D	30	N	7	30	5	100	70	1,000	40
AAS516D	50	20	7	20	5	50	70	>1,000	30
AAS517D	50	<20	20	20	7	100	30	1,000	40
AAS518D	100	20	20	20	15	100	50	300	50
AAS519D	100	20	20	20	15	150	50	300	30
AAS532D	N	N	15	15	10	150	20	>1,000	20
AAS541D	50	<20	15	<10	7	70	70	700	15
AAS542D	N	<20	15	15	7	70	20	1,000	10
AAS543D	N	<20	30	20	15	150	10	1,000	20
AAS544D	70	<20	50	20	15	150	30	500	30
AAS545D	30	20	15	20	10	70	100	>1,000	10
AAS549D	20	<20	10	20	10	100	50	1,000	20
AAS550D	N	<20	7	15	10	70	30	1,000	15
AAS553D	30	<20	10	20	7	70	50	300	10
AAS555D	30	<20	5	15	<5	50	20	1,000	10
AAS557D	N	<20	7	<10	<5	50	20	1,000	10
AAS566D	N	N	20	20	10	150	15	1,000	15
AAS567D	N	N	15	<10	7	70	20	300	10

Table 4.--Trace-element analytical results of stream-sediment samples, Adams Gap and Shinbone Creek Roadless Areas and vicinity, Clay County, Alabama.

Sample	X coor-dinate	Y coor-dinate	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
AAS009T	607,778	370,034	.7	.10	.05	.3	70	150	100	1.0	N	<10	<5
AAS010T	607,690	370,019	.5	.07	<.05	.5	50	100	150	<1.0	N	<10	20
AAS011T	607,690	370,019	.7	.15	<.05	.5	100	150	150	1.0	N	10	<5
AAS012T	607,325	369,932	.7	.15	<.05	.5	50	150	200	1.0	N	<10	<5
AAS020T	607,704	369,285	.7	.10	<.05	.3	700	100	30	1.0	15	10	10
AAS026T	606,345	369,341	3.0	.15	<.05	.7	500	200	150	2.0	15	50	15
AAS035T	605,693	369,446	1.5	.10	<.05	.7	70	200	30	1.5	N	15	7
AAS038T	610,672	369,835	.7	.10	<.05	.7	300	100	70	1.0	7	10	5
AAS050T	610,784	369,980	.7	.10	<.05	.3	30	70	150	1.0	N	15	5
AAS201T	608,440	370,290	.7	.20	<.05	.7	100	150	50	1.5	N	<10	<5
AAS205T	608,161	370,200	3.0	.70	<.05	1.0	1,000	200	300	2.0	20	50	20
AAS206T	607,677	370,210	1.0	.20	<.05	.3	500	200	150	2.0	5	30	10
AAS207T	607,659	370,217	2.0	.30	<.05	1.0	300	200	200	2.0	5	50	15
AAS209T	607,617	370,178	1.5	.20	<.05	1.0	300	200	200	1.5	<5	30	5
AAS210T	604,090	369,808	2.0	.50	<.05	.3	200	200	200	2.0	5	50	15
AAS212T	605,558	369,580	1.5	.30	<.05	.7	200	200	100	1.0	5	20	5
AAS213T	605,500	369,582	2.0	.20	.05	.5	1,000	200	200	2.0	20	50	15
AAS214T	606,960	369,668	.5	.05	<.05	1.0	50	200	20	1.0	N	<10	<5
AAS216T	605,748	369,255	5.0	.10	.05	.2	150	500	300	1.5	N	15	15
AAS217T	607,191	369,268	1.0	.15	<.05	1.0	300	100	100	1.0	10	20	7
AAS228T	610,010	369,561	.7	.10	<.05	1.0	50	150	200	1.0	N	N	<5
AAS231T	610,605	369,707	1.0	.10	<.05	.7	70	50	500	1.0	N	10	7
AAS237T	609,987	369,617	1.0	.10	<.05	.7	50	50	100	1.0	N	20	5
AAS238T	611,336	369,791	1.0	.10	<.05	.7	70	100	100	<1.0	N	15	<5
AAS300T	607,400	369,916	.5	.10	<.05	.7	100	100	100	<1.0	N	10	<5
AAS308T	612,720	369,987	1.0	.10	<.05	.5	150	100	200	1.5	N	10	7
AAS400T	607,740	370,110	1.5	.20	<.05	.5	200	100	200	1.5	N	15	5
AAS403T	608,522	370,118	2.0	.50	<.05	.5	700	200	300	2.0	20	50	20
AAS405T	608,696	370,095	1.0	.20	<.05	.5	300	200	300	2.0	15	10	5
AAS406T	608,629	370,086	1.0	.20	.05	.5	300	150	200	1.0	10	30	5
AAS409T	607,937	370,045	1.0	.15	<.05	.3	500	100	200	1.5	15	20	5
AAS410T	605,336	369,840	2.0	.30	<.05	.7	200	150	300	1.5	5	30	15
AAS417T	606,658	369,882	1.0	.10	<.05	1.0	50	200	100	1.5	N	10	<5
AAS428T	606,902	369,470	1.5	.20	<.05	1.0	50	200	100	1.5	N	50	5
AAS429T	606,660	369,562	1.5	.20	<.05	.5	100	200	100	1.5	5	50	10
AAS432T	606,040	369,532	2.0	.30	<.05	1.0	100	200	200	1.5	<5	50	10
AAS446T	611,958	369,942	.5	.10	<.05	.5	20	100	200	1.0	<5	15	10
AAS501T	607,752	370,265	2.0	.30	.05	.5	500	200	200	2.0	7	50	15
AAS509T	607,801	370,228	3.0	.10	<.05	1.0	300	300	200	2.0	7	50	15
AAS525T	606,283	369,644	1.0	.10	<.05	.3	1,500	100	150	2.0	30	30	10
AAS526T	606,351	369,646	1.0	.10	<.05	.5	100	200	150	1.0	<5	20	10
AAS531T	606,905	369,671	1.0	.10	<.05	.7	70	100	200	1.5	N	50	5
AAS538T	608,440	369,215	1.0	.15	<.05	.3	150	150	200	1.5	N	30	10
AAS546T	609,187	369,232	1.5	.10	<.05	.5	100	200	200	1.0	N	70	20
AAS558T	609,230	369,495	1.0	.15	<.05	.7	100	150	300	1.0	N	20	15
AAS559T	609,238	369,490	1.5	.20	<.05	.7	50	100	500	1.5	N	50	20
AAS563T	611,781	369,841	1.0	.10	<.05	.5	200	70	200	1.0	N	20	5

Table 4.--continued

Sample	La-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	V-ppm s	Y-ppm s	Zr-ppm s	Zn-ppm aa
AAS009T	N	N	7	<10	N	20	15	>1,000	15
AAS010T	N	N	5	<10	N	15	10	100	5
AAS011T	N	<20	7	10	N	20	15	>1,000	15
AAS012T	N	N	5	15	N	20	15	>1,000	10
AAS020T	N	N	7	30	N	30	10	300	25
AAS026T	50	20	10	20	7	50	50	>1,000	35
AAS035T	N	N	7	15	<5	50	15	1,000	10
AAS038T	N	N	5	10	<5	30	15	>1,000	15
AAS050T	N	N	<5	20	<5	20	50	1,000	5
AAS201T	N	20	5	<10	<5	30	15	300	25
AAS205T	70	20	15	20	10	50	100	1,000	80
AAS206T	70	N	10	20	5	50	200	>1,000	60
AAS207T	50	30	7	20	10	50	70	>1,000	45
AAS209T	N	20	7	<10	5	50	50	700	30
AAS210T	30	N	7	100	7	70	30	700	55
AAS212T	50	<20	7	15	7	50	70	>1,000	25
AAS213T	30	<20	20	50	7	50	30	700	40
AAS214T	N	20	5	<10	<5	20	50	>1,000	5
AAS216T	N	N	20	15	5	70	30	500	40
AAS217T	N	20	10	20	N	50	50	>1,000	15
AAS228T	N	<20	7	<10	N	30	30	>1,000	5
AAS231T	30	<20	10	50	7	50	30	1,000	10
AAS237T	N	20	10	<10	5	50	30	1,000	5
AAS238T	N	N	10	<10	N	30	30	>1,000	10
AAS300T	N	<20	10	<10	N	20	20	1,000	5
AAS308T	N	N	10	20	<5	50	50	700	10
AAS400T	70	<20	10	15	5	30	20	700	30
AAS403T	70	20	20	50	10	50	70	>1,000	70
AAS405T	N	N	10	15	N	20	20	1,000	20
AAS406T	20	<20	10	20	N	30	30	500	35
AAS409T	300	<20	10	20	N	20	20	1,000	25
AAS410T	50	20	15	30	5	50	50	>1,000	35
AAS417T	50	20	10	10	N	50	20	>1,000	10
AAS428T	50	20	10	20	5	100	50	1,000	15
AAS429T	50	20	15	30	5	100	20	300	25
AAS432T	50	20	10	20	5	100	30	>1,000	30
AAS446T	50	<20	5	15	<5	30	20	>1,000	5
AAS501T	50	20	10	20	5	50	30	>1,000	60
AAS509T	50	20	10	20	5	50	50	>1,000	45
AAS525T	50	N	7	50	<5	50	20	300	15
AAS526T	20	<20	5	20	N	50	30	>1,000	10
AAS531T	N	<20	5	15	N	50	30	1,000	10
AAS538T	50	<20	5	15	<5	50	30	300	10
AAS546T	N	N	7	<10	5	50	20	300	10
AAS558T	N	20	5	10	5	50	30	>1,000	10
AAS559T	50	20	5	20	5	50	30	1,000	10
AAS563T	N	20	<5	10	<5	50	20	1,000	10